

RE-SUBMISSION OF *PAN* OKEN, 1816 AND *PANTHERA* OKEN, 1816 (MAMMALIA), PROPOSED CONSERVATION UNDER THE PLENARY POWERS. Z.N.(S.) 482

By G. B. Corbet, J. E. Hill, J. M. Ingles and P. H. Napier (*British Museum (Natural History) Cromwell Road, London S.W.7*)

The proposal to validate the generic names *Pan* Oken, 1816 and *Panthera* Oken, 1816 was first submitted to the Commission in 1950 by T. C. S. Morrison-Scott of the British Museum (Natural History), London, and re-submitted in 1965 ([Z.N.(S.) 482] *Bull. zool. Nomencl.* **22** : 230-232) in accordance with the request of the Commission published in 1963 concerning cases sent in before 1959. Later the re-submission was overlooked and because of the lapse of time it is now reprinted as an appendix together with subsequent comments. The present applicants have not emended the material which is reproduced in the Appendix.

Since the last submission of this proposal in 1965, the names *Pan* and *Panthera* have continued to be used as the dominant names for these genera, both by specialists in these groups, eg. Napier & Napier (1967), Hemmer (1966) and by compilers, eg. Walker (1968). Likewise in entomology *Pantherodes* Guenée, 1857 continues to be used, on the assumption that *Panthera* Hübner, 1823 is preoccupied by *Panthera* Oken, 1816. The proposal is therefore as relevant now as in 1965.

However, two small alterations need to be made to the proposal. The late Dr. J. C. Trevor of Cambridge pointed out a use of the specific name *troglodytes* for the chimpanzee earlier than that cited in the application of 1965 (para. 8: (1)a, (2)a and (4)a), and argued that it should be cited from Blumenbach, 1775 (*De generis humani varietate nativa* : 37) rather than from his *Handbuch der Naturgeschichte* of 1779. In view of comments by Hershkovitz (1966) the relevant page references in volume 3, part 2 of Oken's *Lehrbuch der Naturgeschichte*, 1816 can be given as p. 1230 for *Pan* and p. 1052 for *Panthera*.

The case is now re-submitted for any further comment and final decision.

## APPENDIX

*PAN* OKEN, 1816, AND *PANTHERA* OKEN, 1816 (MAMMALIA):  
PROPOSED CONSERVATION UNDER THE PLENARY POWERS.  
Z.N.(S.) 482

By T. C. S. Morrison-Scott (*British Museum (Natural History), London*)

The present case is a revision of one submitted to the Commission in 1950 in accordance with the note published by the Assistant Secretary of the Commission in 1963 at the beginning of Volume 20, Part 2, of the *Bulletin of Zoological Nomenclature*. This note, which requested authors of cases submitted before 1959 to revise and resubmit them, has only just come to my attention.

2. The two names in question were first published by Lorenz Oken in Volume 3 of his *Lehrbuch der Naturgeschichte* 1816, a work rejected by the Commission for nomenclatorial purposes, in Opinion 417, published in 1956. At the same time, the International Commission invited zoologists to submit applications for validation under the plenary powers of any name published in the *Lehrbuch* the rejection of which would, in their opinion, lead to instability or confusion in the nomenclature of the group concerned. In my 1950 application I requested that 7 genera with their type-species should be placed on the Official Lists. Only *Pan* and *Panthera* are now required to be dealt with in this way, and for the following reasons.

3. *Pan*. After earlier usages of *Simia*, and *Anthropopithecus* which still appears from time to time, zoologists generally have now settled down with *Pan* for chimpanzees. To introduce yet one more change, to *Chimpansee* Voigt, 1831, when the Commission invites us to stabilise with *Pan* would hardly contribute to stability. There would be yet one more name in medical, and anthropological, etc. works and it would have to be explained by future authors that when they refer to *Chimpansee* they are really also referring to the animal called *Pan* in previous works. And if it be thought that *Chimpansee* is an attractive proposition as being self-explanatory it should be remembered that there are published grounds for holding that gorillas and chimpanzees should be placed in the same genus. If gorillas came to be called *Chimpansee* there could be some confusion in zoology, let alone amongst practical users of zoology for whom straightforward stability has greater appeal than the finer and more esoteric points of pure priority.

4. *Panthera*. The usage of this name for the great cats is now well established and universally understood. If we do not accept the Commission's invitation to stabilise it the next available name seems to be *Leo* Brehm, 1829. To begin, now, to refer to tigers as *Leo tigris*, and leopards as *Leo pardus* etc. would seem unhelpfully to confuse matters.

5. Prior to the publication of Opinion 417 the Oken names had been rejected by Cabrera, 1932, and by Hershkovitz, 1949, but G. Gaylord Simpson had supported the validation of *Pan* and *Panthera* in a letter to the International Commission dated 19 October, 1950.

#### 6. *Pan* Oken

Stiles and Orleman, 1927, studied the problem of the nomenclature of the Chimpanzee in considerable detail and came to the conclusion (p. 59) that the correct name for the Chimpanzee was *Simia satyrus* L. 1758. But in 1929 this name was suppressed by the Commission in Opinion 114. Consequently, the valid name under the Rules is *Chimpansee troglodytes* (Blumenbach), 1779. Although *Chimpansee* Voigt, 1831, is the generic name accepted by Hershkovitz, 1949 (*J. Mammal.* 30 : 296) as the valid pertinent name, he points out that the name *Pan* can be attributed to Palmer, 1904 (*Index Gen. Mamm.* : 508, 902) who cited it from Oken.

Following the publication of Opinion 417 in 1956 it is now possible to conserve the name *Pan* as dating from Oken, 1816.

7. *Panthera* Oken.

According to J. A. Allen, 1902 (*Bull. Amer. Mus. Nat. Hist.* 16 : 378) the type of Oken's genus *Panthera* is *P. vulgaris* Oken which he stated was practically identical with *Leopardus* Gray, 1867. Hershkovitz, 1949, dates *Panthera* from Palmer, 1904 (*Index Gen. Mamm.* : 509) who cited it from Oken pp. 1052-1066, and accepts Allen's 1902 type-selection as *Panthera vulgaris* (Sp. 7 in Oken). He points out that *Panthera* Severtzow, 1858, is preoccupied by *Panthera* Hübner, 1823, in Insecta, Lepidoptera. This name is not now in use in Lepidoptera having been regarded as a homonym of *Panthera* Oken and given the replacement name *Pantherodes* by Guenée in 1857. By Opinion 417, however, *Panthera* Hübner, 1823 again becomes available.

Therefore, in order to conserve the names *Panthera* in Mammalia and *Pantherades* in Lepidoptera, it is necessary to validate *Panthera* Oken, 1816, under the plenary powers. As shown by Hershkovitz (*loc. cit.* p. 298) there is difficulty in identifying *P. vulgaris* Oken which Allen selected as type-species of *Panthera* Oken. Hershkovitz concludes that this type-species must be the S. American *Felis calacolo* (Oken p. 1052).

It is, therefore, necessary when conserving *Panthera* Oken, to designate a type-species under the plenary powers (for example *Felis pardus* L. 1758).

8. The International Commission on Zoological Nomenclature is requested to take the following action:

(1) to use its plenary powers:

- (a) to validate the generic name *Pan* Oken, 1816, as allowed by Opinion 417, and to designate *Simia troglodytes* Blumenbach, 1779, as the type-species;
- (b) to validate the generic name *Panthera* Oken, 1816, as allowed by Opinion 417, and to designate *Felis pardus* L. 1758, as the type-species;

(2) to place the following generic names on the Official List of Generic Names in Zoology:

- (a) *Pan* Oken, 1816 (gender : masculine), type-species, by designation under the plenary powers in (1) (a) above, *Simia troglodytes* Blumenbach, 1779 (The Chimpanzee);
- (b) *Panthera* Oken, 1816 (gender : feminine), type-species by designation under the plenary powers (1) (b) above, *Felis pardus* Linnaeus, 1758 (The Leopard);

(3) to place the following generic names on the Official Index of Rejected and Invalid Generic Names in Zoology:

- (a) *Theranthropus* Brookes, 1828, *Cat. Anat. Zool. Mus.* : 28.
- (b) *Chimpansee* Voigt, 1831, *Cuvier's Das Thierreich* 1 : 76.
- (c) *Anthropopithecus* Blainville, 1838, *Ann. Franc. et Etr. Anat. Phys* II : 360,

as junior objective synonyms of *Pan* Oken, 1816;

- (d) *Panthera* Hübner, 1823, *Zutr. Exot. Schmett.* II : 25, (a junior homonym of *Panthera* Oken, 1816).

- (4) to place the following specific names on the Official List of Specific Names in Zoology:
- (a) *troglodytes* Blumenbach, 1779, as published in the binomen *Simia troglodytes* (type-species of *Pan* Oken, 1816);
  - (b) *pardus* Linnaeus, 1758, as published in the binomen *Felis pardus* (type-species of *Panthera* Oken, 1816).

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*Bull. zool. Nomencl.*, Vol. 22, Part 4. November 1965 : 230-232

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COMMENTS ON THE PROPOSAL FOR CONSERVATION OF *PAN* OKEN,  
 1816, AND *PANTHERA* OKEN, 1816  
 (see volume 22, pages 230-232)

By Philip Hershkovitz (*Field Museum of Natural History,  
 Chicago, Illinois*)

Morrison-Scott (B.Z.N. 22 : 230, 1965) requests conservation of the "generic" names *Panthera* and *Pan* from Oken's *Lehrbuch der Naturgeschichte*, published 1816. In 1956, the International Commission on Zoological Nomenclature rejected, in Opinion 417, the *Lehrbuch* for purposes of zoological nomenclature. I have shown elsewhere (1949, *Journ. Mammal.*, 30 : 289-301) that there is no need to revert to this non-binomial work for any zoological name. Nearly all generic names for mammals ostensibly cited from Oken's *Lehrbuch* are available in well known and nomenclaturally valid publications. Two or three "Oken" names still current but with availability from binomial works clouded by questions of homonymy or priority may give concern to some zoologists. The International Commission on Zoological Nomenclature can, by use of its plenary powers, validate such names from any nomenclaturally recognized source. Nevertheless, action should not be taken in cases where non-Oken names are available under the Code and in use without entailing confusion in concepts or upheavals in nomenclature.

Zoologists who publish taxonomic revisions, check lists, or catalogs of animals, assume full responsibility for each bibliographic reference they cite and for the taxonomic status and availability of each name they recognize. Authors such as G. M. Allen (1939, A check list of African mammals), G. G. Simpson (1945, The principles of classification and a classification of mammals), and J. R. Ellerman and T. C. S. Morrison-Scott (1951, Checklist of Palaearctic and Indian mammals, 1758 to 1946) who gleaned names from Palmer (1904, *Index generum mammalium*) but cited them as if copied directly from Oken, 1816, are representing bad names for good and imprecise or non-existent bibliographic references for original and valid sources. It is ironical that

zoologists who scorned the rules of nomenclature now apply to the International Commission on Nomenclature for conservation of counterfeit names they favored and rejection of the appropriate and currently used bonafide names they disfavor.

“*Panthera* Oken, 1816”

In his proposal, Morrison-Scott states that conservation of *Panthera* for great cats requires validation of the name from Oken, 1816. He adds that inasmuch as *Felis colocolo*, the ascribed type of “*Panthera* Oken” is not a great cat, it is necessary to designate another type, namely *Felis pardus* Linnaeus.

Oken’s *Lehrbuch* contains no generic name *Panthera* as used and understood by modern authors. *Felis pardus*, as employed by Oken, has nothing to do with his “*Panthera*” and is not unequivocally the Linnaean *Felis pardus*. Morrison-Scott gives no bibliographic reference to his fancied “*Panthera* Oken, 1816”, and he cannot because there is none. In short, Morrison-Scott requests validation of a name from a work rejected for purposes of zoological nomenclature, cited from an author who never proposed the name in the form or sense currently used or recognized by Morrison-Scott, and with the type species pulled out of a hat.

Procedure, technicalities, legalities and proprieties to one side, the claim that there is need for conserving *Panthera* as of Oken, Morrison-Scott, or anyone else, does not bear scrutiny.

The most widely used name for great cats is *Felis* Linnaeus. This is the generic name applied to all North American cats, except lynxes, by Hall and Kelson (1959) in “The mammals of North America.” These authors treat “*Panthera*” of Frisch and Oken as “unavailable”. Cabrera (1958 : 298) in his authoritative “Catálogo de los mamíferos de America del Sur”, employs *Leo* Brehm 1829 (Oken’s *Isis*, p. 637) as the generic name for great cats. In his posthumous monograph of Argentine cats, Cabrera (1962 : 162) categorically denies recognition to names proposed in works officially rejected for purposes of zoological nomenclature irrespective of the facade of legality they may subsequently receive. In my manuscript catalog of South American mammals, *Felis* is the generic name used for most species of cats including the jaguar. There is no intention or thought of recognizing “*Panthera*” under any guise.

Wide usage of *Panthera* for great cats stems from Pocock (1916, *Ann. Mag. Nat. Hist.*, (8), 18 : 314). This authority believed that “since the tendency of modern systematic mammalogy has found in the present instance expression in the admission of many [!] species of leopard, lion, jaguar and tiger, it is possible, perhaps probable, that the logical outcome of that process—namely, the ascription of generic rank to each of these animals—will be followed in the future. If that be so, nominal symbols are available for them.” With these remarks, Pocock (*loc. cit.*) listed the following generic names for great cats.

*Panthera* Oken, ex Allen, 1902 (*Bull. Amer. Mus. Nat. Hist.*, 16 : 377), for the leopard.

*Tigris* Oken, ex Palmer, 1904 (*Index generum mammalium, N.A.F.*, 23 : 509), for the tiger.

*Leo* Oken, ex Palmer, 1904 (*op. cit.*, p. 368), for the lion.

*Uncia* Gray, 1854 (*Ann. Mag. Nat. Hist.* (2), 14 : 394), for the ounce.

*Jaguarinus* Severtzow, 1858 (*Rev. Mag. Zool.* (2), 10 : 386), for the jaguar.

Recognition of five genera of great cats persuaded Pocock to raise the group to subfamily rank, the Pantherinae, primarily on the basis of a character of the hyoid apparatus which now proves to be even more tenuous than has been generally supposed. Other characters adduced for generic separation of great cats from small as typified by *Felis catus* Linnaeus, have not withstood critical review. Validation of *Panthera* as the obligate generic name for great cats is neither indicated nor in the best interest of taxonomy or nomenclature.

It is urged that Morrison-Scott’s application for conservation of “*Panthera* Oken, 1816”, be rejected. The reasons are summarized as follows.

1. “*Panthera* Oken, 1816” is an undigestible artifice. Current usage of the name stems from Allen, 1902 (*supra cit.*) and Palmer, 1904 (*supra cit.*).

2. The most commonly used generic name for great cats is *Felis* Linnaeus.
3. There is no strong evidence that great cats typified by the leopard, *Felis pardus* Linnaeus, are generically distinct from small cats typified by *Felis catus* Linnaeus. Generic or subgeneric distinction between the two groups is, however, recognized by some authorities (not merely authors or compilers). Generic names, other than "Panthera", for separating them are available and in use.
4. The earliest available generic (or subgeneric) name for great cats is *Leo* Brehm, 1829 (*supra cit.*), type *Felis leo* Linnaeus. Current and spreading usage of this valid and uncontroversial name promotes stability, meets with no serious objections and results in no confusion.
5. The International Commission on Zoological Nomenclature should not validate a rejected name for which there is no need from a non-binomial work which most zoologists cannot or will not in clear conscience accept on zoological or nomenclatural grounds.

In conclusion, it is requested that the International Commission on Zoological Nomenclature

- (1) place the name "Panthera Oken", cited by authors, on the Official List of Rejected and Invalid Generic Names in Zoology;
- (2) place the generic name *Leo* Brehm, 1829 (Oken's *Isis*, p. 637), on the Official List of Generic Names in Zoology.

"Pan Oken, 1816"

Scientific names of primates are used by a very small number of zoologists. Few anthropologists, primatologists, zookeepers, behaviorists, biomedical and biochemical investigators and others using non-human primates in research or for display, are zoologists. Hardly any of them are taxonomists. Scientific names of animals mean little to them. The rules of nomenclature mean even less. There is an urgent need to convince non-zoologists and non-taxonomists of the importance of taxonomic discriminations and the use of correct scientific names for experimental and display animals. This task becomes particularly difficult and complicated if workers are asked to use technical names which are not valid according to our Code and which have been declared unavailable by special ruling of our Commission.

The name "Pan Oken, 1816", for the chimpanzee, has not been universally adopted. It is or would be rejected by the vast majority of zoologists familiar with the rules of nomenclature and the history of Oken's *Lehrbuch*. As noted, most of those who work with chimpanzees are not accustomed to use scientific names for animals. They may be more familiar with the pipes of Pan than with the Pan of Oken. This makes it all the more urgent to arouse the nomenclatural consciousness of those who use chimpanzees in research with the valid and convincing generic name, *Chimpansee* Voigt.

Morrison-Scott's belief that the change from *Pan* to *Chimpansee* after earlier usage of *Pan*, *Simia* and *Anthropopithecus* "hardly contributes to stability", is not supported by history.

Nomenclatural changes have consistently moved toward stability by rejection of the invalid for the valid. The history of such names as *Callithrix* Erxleben, 1777, versus *Hapale* Illiger, 1811, and *Saguinus* Hoffmannsegg, 1807, versus *Leontocebus* Wagner, 1840, *Marikina* Lesson, 1840, *Tamarin* Gray, 1870 and others, prove the point. The many "Oken names" widely used during a 20-30 year span have all but disappeared from recent literature. The attempt to salvage *Pan* (and *Panthera*) seems to be a belated and gratuitous rearguard action.

The contention that confusion would ensue should gorillas and chimpanzees be combined generically is baseless. I doubt the premise but here are the alternatives.

*Pan gorilla*  
*Pan troglodytes*  
 versus  
*Chimpansee gorilla*  
*Chimpansee troglodytes*

I submit that the true identity of either chimpanzee or gorilla is less likely to be confused under the generic name *Chimpansee* than under that of *Pan*.

"Pan" gained currency through Elliott's despairingly erratic, "A review of the Primates (1913, p. 227)". Elliott's source for the name was, of course, Palmer (1904, *Index generum mammalium*, p. 508). Very little survives of Elliott's contributions to primatology and there is no good reason for clinging to his usage of "Pan Oken".

In conclusion, the International Commission on Zoological Nomenclature is requested to

- (1) reject Morrison-Scott's application for conservation of "Pan Oken".
- (2) place the name "Pan Oken", cited by authors, and the sales catalog name *Theranthropus* Brookes, 1828 (A catalogue of the anatomical and zoological museum of Joshua Brookes, Esq., F.R.S., F.L.S., etc., p. 48), on the Official Index of Rejected and Invalid Generic Names in Zoology.
- (3) place the generic name *Chimpansee* Voigt, 1831 (Cuvier's *Das Thierreich*, 1 : 76) type, *Simia troglodytes* Blumenbach, by monotypy, on the Official List of Generic Names in Zoology.

By Fernando Dias de Avila-Pires (*Museu Nacional, Rio de Janeiro, Brasil*)

I would like to comment on the proposed validation of the generic names *Pan* Oken, 1816, and *Panthera* Oken, 1816.

I do not think that considering one work non-nomenclatorial but validating a number of names published in it would contribute at all to make nomenclature stable. Theoretically we could have one book in the "index" as non-valid, but with the majority or the totality of its names validated.

In the present case I very much regret to disagree with T. C. Morrison-Scott, on the following grounds.

1. *Pan* undoubtedly is a "well stabilized" name for the chimpanzees. In case we accept the correct generic name *Chimpansee* Voigt, 1831, it certainly will be confusing for non-taxonomists to call a gorilla, *Chimpansee*, once they are accepted as co-generic. But it would also be confusing to call scientifically a gorilla, *Pan*, once it is a "well stabilized" name for the chimpanzees . . . In fact what is confusing and strange—to non-primatologists—is not the nomenclatorial problem, but the discovery that gorillas and chimpanzees are so closely related. If the name *Gorilla* was older than *Pan* or *Chimpansee*, it would also be confusing to call a chimpanzee, *Gorilla*.

2. With the names *Panthera* Oken, 1816, and *Leo* Brehm, 1829 the same problem arises. Lions, jaguars, tigers and leopards (or panthers), all belong to the same genus. But when you use a new combination for the first time, then you realize how closely related these animals are considered to be. To call a panther *Leo* is no more confusing than to call a lion, *Panthera*.

Altogether, there is some argument about the type-species of *Panthera* Oken, which Hershkovitz holds to be the South American *Felis colocolo*, once Allen selected *Panthera vulgaris* Oken as the type-species.

*Bull. zool. Nomencl.*, Vol. 23, Double Part 2/3. July 1966 : 67-70

COMMENT ON THE PROPOSAL FOR THE CONSERVATION OF  
*PANTHERA* AND *PAN*. Z.N.(S.) 482  
(see volume 22, pages 230-232)

By E. Tortonese (*Museum of Natural History, Genoa, Italy*)

When I read Morrison-Scott's proposal for the conservation of the names *Pan* and *Panthera*, I sent a few words of support, as it seemed advisable to keep such names, now widely employed by both mammalogists and non-mammalogists.

Now, I am rather impressed by comments sent by P. Hershkovitz and by F. Dias de Avila-Pires (*Bull. zool. Nomencl.* 23 (2/3) : 67-69). It appears that we must first

consider not a nomenclatorial problem, but a strictly taxonomic one: are large and small cats congeneric or not? are chimpanzee and gorilla congeneric or not?

It is often said that the taxonomy of mammals is now well established and that only the smaller forms require further work. It is therefore surprising that we don't know the proper scientific name of the lion, or the chimpanzee; as a matter of fact a museum curator or director is still uncertain (1966!) about the labelling of the specimens, and the present examples are not alone.

Therefore, I consider the opportunity of discussing a nomenclatorial question a doubtful one when the corresponding taxonomic question has not been solved.

May I add that, as far as large mammals are concerned, the solution of similar problems is particularly desirable. The present case involves such "well-known" animals that a final agreement on their taxonomy can reasonably be expected. Of course, this is a matter for the mammalogists and not for the Commission. The latter can consider later what generic names are to be used, if this remains uncertain.

*Bull. zool. Nomencl.*, Vol. 24, Part 1. March 1967 : 3

COMMENT ON THE PROPOSED PRESERVATION OF *PAN* FROM OKEN,  
1816. Z.N.(S.) 482

(see volume 22, pages 230-232, volume 23, pages 67-70)

By Ernst Mayr (*Museum of Comparative Zoology, Harvard University,  
Cambridge, Mass., U.S.A.*)

I strongly support the application of Morrison-Scott to preserve the name *Pan* Oken, 1816. As early as 1914 this name has been called a "Code name" in Opinions of the Commission. It is the name almost universally used since that time either for the chimpanzee or for the African apes. To say, as Hershkovitz does, that there is no need for stability of scientific names in this area because "few anthropologists, primatologists, zookeepers, behaviourists, biomedical and biochemical investigators and others using non-human primates in research . . . are zoologists" is an argument the force of which I fail to comprehend. All these people have been using the name *Pan* for the last couple of generations and there is no conceivable advantage in changing it at this late date. Furthermore, as correctly pointed out by Morrison-Scott, there is a strong trend to place both chimpanzee and gorilla in the same genus and the neutral name *Pan* is certainly more suitable for this polytypic genus than the name *Chimpanzee*. Few scientific names have been as stable as has been the name *Pan* over the last 50 years and to change it would expose taxonomy to precisely the kind of reproaches of irresponsibility and failure to understand the information retrieval significance of nomenclature which the more responsible taxonomists have been trying to refute.

*Bull. zool. Nomencl.*, Vol. 24, Part 2. April 1967 : 66

*PANTHERA* OKEN, 1816 (MAMMALIA, CARNIVORA): FURTHER  
COMMENT ON THE PROPOSED PRESERVATION AND RENEWED  
APPLICATION. Z.N.(S.) 482

(see vol. 22, pages 230-232, vol. 23, pages 67-70, vol. 24, page 3)

By Helmut Hemmer (*Institut für physiologische Zoologie,  
University of Mainz, Germany*)

Concerning the Morrison-Scott's (*Bull. zool. Nomencl.* 23 : 230-232, 1965) request to the International Commission on Zoological Nomenclature "to validate the generic name *Panthera* Oken, 1816, as allowed by Opinion 417, and to designate *Felis pardus* L. 1758, as the type-species", there were published in this journal unfavourable



comments by Hershkovitz and Dias de Avila-Pires and a consent by Tortonese. In the interest of defending zoological nomenclature against confusion it seems highly necessary to discuss these comments.

The first mention of the name *Panthera* without any following specific name and therefore not clearly marked as a generic name may be found in Oken's "Lehrbuch der Naturegeschichte. 3 Theil, Zoologie, 2. Abth., Fleischthiere, Leipzig 1816" on page 1052 for *Felis colocolo*. Abbreviated to *P.* one finds this name further on as *P. paraguayensis* (p. 1052) and *P. mexicana* (p. 1054). Hence Hershkovitz is surely right concerning the first mention of *Felis colocolo*, the hitherto ascribed type of *Panthera* Oken, in saying this is "no generic name *Panthera* as used and understood by modern authors". With regard to this the unabbreviated name *Panthera* with clear generic meaning followed by a specific name may be found in the "Lehrbuch" as *Panthera americana* (p. 1054) for the ocelot. Following this Oken used *Panthera* again in abbreviation among others for the leopard (p. 1057: "6. Art *P. varia*, *F. Leopardus*" for the *Panthera pardus leopardus* and *Panthera pardus panthera* (partim); p. 1058: "7. Art. *P. vulgaris*, *Panthera*, *F. Pardus*" for the african leopard, especially the *Panthera pardus pardus* from Egypt). Therefore Hershkovitz seems to be wrong in writing "*Felis pardus*, as employed by Oken, has nothing to do with his "*Panthera*" and is not unequivocally the Linnean *Felis pardus*". According to Article 69 of the International Code of Zoological Nomenclature there is no reason why *Felis pardus* L. should not be designated as type-species of *Panthera* Oken as requested by Morrison-Scott, for *Felis pardus* L. obviously has been included by Oken as one species among others in his genus *Panthera*. Article 1 of Hershkovitz's summary: "*Panthera* Oken, 1816 is an undigestible artifice" has to be rejected.

Hershkovitz states that "the most widely used name for great cats is *Felis* Linnaeus". He cites as a proof for this view only three published faunal catalogues for North and South America and his own manuscript catalogue of South American mammals. Except in the monograph of Cabrera (Los Felidos vivientes de la Republica Argentina. *Revista del Mus. Argent. de Cienc. Nat. "Bernardino Rivadavia" e Inst. Nac. de Invest. de la Cienc. Nat.*, 6 (5), Buenos Aires 1961) of Argentine cats using *Leo* instead of *Felis* (!) for the great cats, there is no special paper on the classification of the Felidae in his list. Out of the great number of papers on this matter written by Pocock and using the name *Panthera* Hershkovitz cites only one of the earliest from 1916 recognizing five different genera of great cats. It seems that he has overlooked all following papers of the same author summarizing lion, tiger, leopard and jaguar under the generic name *Panthera*. Since Pocock's work on "The Classification of existing Felidae" (*Ann. Mag. Nat. Hist.* 20 (119) : 329-350, 1917) giving subfamily rank to the *Panthera*-group there are exactly 50 years now in which the name *Panthera* Oken was widely used not only in special taxonomic papers as given by Haltenorth (Die verwandtschaftliche Stellung der Grosskatzen zueinander I and II (*Z.f. Säugetierke.* 11 : 32-105 and 12 : 97-240, 1936 and 1937), Zarapkin (zur Frage der verwandtschaftlichen Stellung der Grosskatzen zueinander. *Z.f. Säugetierke.* 14 : 220-224, 1939), Leyhausen (Beobachtungen an Löwen-Tiger-Bastarden mit einigen Bemerkungen zur Systematik der Grosskatzen. *Z.f. Tierpsych.* 7 : 46-83, 1950), or Wiegel (Das Fellmuster der wildlebenden Katzenarten und der Hauskatze in vergleichender und stammesgeschichtlicher Hinsicht. *Säugetierkundl. Mitt.* 9, Sonderheft, 1961), or in the fundamental Simpson's classification of mammals (The Principles of Classification and a Classification of Mammals. *Bull. Amer. Mus. Nat. Hist.*, 83 : 1-350, 1945), but also in most of the general mammalogical and non-mammalogical literature and textbooks, as already stated by Tortonese (cited above). Therefore, article 2 of Hershkovitz's summary: "The most commonly used generic name for great cats is *Felis* Linnaeus" for want of any good foundation has to be rejected too.

Subfamily rank was given to the *Panthera*-group by Pocock primarily on the basis of a character of the hyoid apparatus as Hershkovitz correctly states. But Hershkovitz quotes no published new investigation concerning this feature in assuming that this character "now proves to be even more tenuous than has been generally sup-

posed". Further on he is simply wrong saying: "Other characters adduced for generic separation of great cats from small as typified by *Felis catus* Linnaeus, have not withstood critical review."

As I have shown elsewhere in detail (Hemmer, H.: Untersuchungen zur Stammesgeschichte der Pantherkatzen (Pantherinae). Part I. *Veröffentl. d. Zool. Staatssammlung München* 11 : 1-121, 1966) the four species lion, leopard, jaguar and tiger belonging to one another differ morphologically as well as behaviourally from all other genera or species groups of cats to a very much greater extent than do these groups between themselves, except the cheetah (*Acinonyx jubatus*). Beside the character of the hyoidean apparatus Pocock (On the external characters of the Felidae. *Ann. Mag. Nat. Hist.* 19 : 109, 1917) has already described two more differences between Pantherinae and Felinae concerning the rhinarium and the claw-sheaths. Sonntag (The Comparative anatomy of the tongue of the Mammalia. VIII. Carnivora. *Proc. Zool. Soc. London*, 1923) showed a further characteristic feature in the morphology of the tongue. Leyhausen (Verhaltenstudien an Katzen, 1956, and: Über die unterschiedliche Entwicklung einiger Verhaltensweisen bei den Feliden. *Säugetierkundl. Mitt.*, 4 : 123-125, 1956) has published some behavioural differences (voice, eating attitude, tearing action, care of the fur). The ounce (*Uncia uncia*) differs enough from the taxonomically clearly defined genus *Panthera* to be given its own generic rank but phylogenetically related to the base of it. Therefore the taxonomic connection of these two genera may only be expressed by a higher taxonomic category than the generic one. The subdivision of the Felidae into the three subfamilies Pantherinae, Felinae and Acinonychinae seems to be fully justified (see Hemmer, l.c., especially pages 17-18). For the Pantherinae there may be given the following diagnosis:

Suspensorium of the hyoid imperfectly ossified, its interior portion consisting of a larger or shorter elastic tendon. Naked area of the rhinarium not, or at most with a very narrow area, reaching to the dorsal side of the nose; rhinarium itself tolerably flat, the median area narrow without definite lateral infranarial extension. Claw sheaths well developed, both upon the outer and the inner side of the claw. Spinous patch of the tongue begins close to apex of tongue, and is restricted to the anterior part of the dorsum. In the pattern of the head and neck nowhere continuous longitudinal stripes but spots only. Pupil of the eye at normal light round or nearly round. Use of "tearing action" at eating. Care of the fur, especially concerning the face, not very thorough. Tail generally stretched out backwards in sitting or resting attitude.

These explanations may show that article 3 of Hershkovitz's summary: "There is no strong evidence that great cats typified by the leopard, *Felis pardus* Linnaeus, are generically distinct from small cats typified by *Felis catus* Linnaeus" has also to be rejected.

In his article 4, Hershkovitz speaks of a "current and spreading usage" of the name *Leo* Brehm for great cats which "promotes stability, meets with no serious objections and results in no confusion". I can see no proof for this view of current and spreading usage of *Leo*. Placing the name *Leo* Brehm on the Official List of Generic Names in Zoology in place of *Panthera* Oken would contradict the stability of nomenclature and result in the greatest confusion. Such an unnecessary change in the name of one of the widely known genera of animals would be beyond every reasonable regulation of nomenclature. In requesting the International Commission of Zoological Nomenclature to place the name *Panthera* Oken on the Official List of Rejected and Invalid Generic Names in Zoology and asserting that there would be no need for this name, as he has done in his article 5, Hershkovitz himself calls for such confusion.

Dias de Avila-Pires (cited above) also disagrees with Morrison-Scott. But his real problem in doing so is not a nomenclatorial one but a problem of language. His statement: "To call a panther *Leo* is no more confusing than to call a lion *Panthera*" seems to be a very unrealistic argument for rejecting a well established name in favour of another one which would be in no way better according to his own view.

In connection with this proposed preservation of *Panthera* Oken there is another problem. I have shown (Hemmer, l.c.) that the genus *Panthera* has to be subdivided into the two subgenera *Panthera* for lion, leopard and jaguar and *Tigris* for the tiger. The first mention of *Tigris* with generic meaning likewise dates from Oken, 1816, the second from Gray, 1862. As I have no firm intention of applying for a third name of Oken's to be validated, the International Commission for Zoological Nomenclature may decide which of these two names should be valid.

In conclusion, I support and renew Morrison-Scott's application for conservation of "*Panthera* Oken, 1816" and request a decision on the author of the subgeneric name *Tigris*. The International Commission on Zoological Nomenclature is requested to take the following action:

to use its plenary powers:

- (1) to validate the generic name *Panthera* Oken, 1816, as followed by Opinion 417, and to designate *Felis pardus* L., 1758, as the type-species;
- (2) to decide on the subgeneric name *Tigris* between the authors Oken, 1816, and Gray, 1862.

*Bull. zool. Nomencl.*, Vol. 24, Part 5. December 1967 : 259-261

#### REPLY TO MAYR'S COMMENT ON THE PROPOSED PRESERVATION OF *PAN* FROM OKEN, 1816. Z.N.(S.) 482

By Philip Hershkovitz (*Field Museum of Natural History, Chicago, Illinois, U.S.A.*)

In his comment on preservation of *Pan* Oken, 1816, Professor Mayr (*Bull. zool. Nomencl.* 24 (2) : 66) declares, "to say as Hershkovitz does, that there is no need for stability for scientific names in this area because,"—then he goes on with a direct quotation from Hershkovitz (*Bull. zool. Nomencl.* 23 (2/3) : 68), italics mine—"few anthropologists, primatologists, zookeepers, behaviorists, biomedical investigators and others using non-human primates in research . . ., are zoologists' is an argument the force of which I fail to understand."

In his statement, Mayr first attributes to me a conclusion of his own device and which is entirely alien to anything I said or implied. He then couples it with names of scientific professions I listed in a context diametrically opposed to his peculiar interpretation.

My original remarks, which Mayr obviously failed to understand, are clear and unequivocal exhortations to all who work with animals to seek stability of scientific names in harmony with the International Code of Zoological Nomenclature and Opinions of the International Commission on Zoological Nomenclature.

*Pan*, cited from "Oken, 1816" (*Lehrbuch Naturgeschichte* . . ., usually without definite page reference) is invalid because the International Commission on Zoological Nomenclature rejected Oken's *Lehrbuch* for nomenclatorial purposes (Opinion 417, 1956). It has been shown that *Chimpansee* Voigt, 1831, is the oldest available name for the chimpanzee.

As explained in my comments, most users of *Pan* Oken, are not concerned or even aware of the status of the name. The vast majority tend to accept zoological names in good faith from secondary sources.

To my knowledge, no author of any taxonomic list or classification which includes *Pan*, and no proponent of the preservation of *Pan*, credit this generic name to a proper source or propose that it be preserved from a binomial author, and thus placed on the Official List of Generic Names in Zoology.

Perhaps Mayr, Morrison-Scott, and others favouring preservation of *Pan* from Oken, 1816, are more concerned with the validation of Oken's *Lehrbuch* than with a valid name for the chimpanzee. Surely, most opposition to the use of *Pan* would dissolve were this name cited from its first correct usage for the chimpanzee, for

example Palmer, 1904 (*Gen. Mamm.* : 508) and not from a zoologically dubious base and a nomenclatorially unacceptable work.

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*Bull. zool. Nomencl.*, Vol. 24, Part 5. December 1967 : 261-262

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A COMMENT ON THE PROPOSED PRESERVATION OF THE GENERIC NAME *PANTHERA* OKEN, 1816 (MAMMALIA, CARNIVORA). Z.N.(S.) 482 (see volume 22, pages 230-232; vol. 23, pages 67-70; vol. 24, pages 3, 259-261)

By Vratislav Mazak (*Museum National d'Histoire Naturelle, 91-Brunoy, France and Institute of Systematic Zoology, Charles University, Prague, Czechoslovakia*)

Since Morrison-Scott's (*Bull. zool. Nomencl.* 22 : 230-232, 1965) request to validate the generic name *Panthera* Oken, 1816, several comments concerning this question have been published in this journal (vol. 23 : 67-70, vol. 24 : 3 and 259-261).

Technical problems connected with the name *Panthera* Oken, 1816 were discussed in detail by Hemmer (*Bull. zool. Nomencl.* 24 : 259-260, 1967). I agree completely with Hemmer's opinion and conclusions as far as the question of the name *Panthera* is concerned. I would only like to mention some additional facts and some more general aspects concerning the problem.

There certainly is no doubt that Hershkovitz's statement (*Bull. zool. Nomencl.* 23, 1966) that "the most commonly used generic name for great cats is *Felis* Linnaeus" has to be rejected. In the course of the last decades the generic name *Panthera* has been undoubtedly applied to big cats much more frequently than the name *Felis*. The status of the name *Panthera* Oken, 1816, has already been discussed by Ognev (*Zveri SSSR i prilozhashchikh stran*, Moscow-Leningrad, vol. iii, pp. 237-238, 1935; see also *Mammals of U.S.S.R. and Adjacent Countries*, vol. 3, Jerusalem, 1962) who did not finally accept the name. The arguments of this Russian author are principally the same as those of Hershkovitz (l.c.), i.e. that the type-species of the genus in question is *Felis colocola*. Hemmer (l.c.) mentions, however, all the reasons showing that the name *Panthera* may be, in fact, accepted without being at variance with the International Code of Zoological Nomenclature. It is interesting to mention that the generic name *Panthera* has later on been used by Ognev himself as well as by his disciples; e.g. Stroganov in his excellent monograph on the Siberian Carnivora (*Zveri Sibiri. Khishchnye. [Mammals of Siberia. Carnivora.]* Moscow, 1962).

Generally a somewhat different concept of genus accepted by American authors on the one hand and by European authors on the other hand can explain another statement by Hershkovitz saying that "there is no strong evidence that great cats . . . are generically distinct from small cats . . .". As commonly known the American mammalogists incline to be more or less "lumpers", the European mammalogists "splitters". This question, however important it is, has none the less absolutely nothing to do with the problems of nomenclature and its stability.

Hemmer (l.c., p. 260) summarizes quite a gamut of different characteristics which separate the group of so-called big cats (Pantherinae) from all other cats. To the morphological characteristics of the subfamily Pantherinae given by Hemmer, I would like to add that Ognev (l.c., pp. 111-112) mentions a difference in the projection of the anterior processus of the jugal bone. As the characteristic given by Ognev was established on the basis of materials of those species of cats which inhabit the territory of the Soviet Union, I have tried to verify it in other forms of the Felidae and I can, in this place, state that the characteristic in question does not seem to be of general validity. Nevertheless, another characteristic, briefly recently described (V. Mazak, Note sur les caractères crâniens de la sous-famille des Pantherinae [Carnivora, Felidae]. *Mammalia*, 32 (in print) 1968), was found. In big cats the most anterior part of the zygomatic arch, laterally from the foramen infraorbitale, does not generally exceed the level of the foramen infraorbitale itself, whilst in small cats it generally reaches beyond the level of infraorbital foramen in the oral direction. It should be said, however,

that in the Cheetah (*Acinonyx jubatus*) the shape of the anterior part of the zygomatic arch is more or less similar to that found in big cats. I think it is not necessary to mention that many other various features separate the Cheetah from big cats as well as from other cats.

As to the different features of behaviour given by Hemmer (l.c.) I can emphasize that all of them are fully justified. Indubitably we must not over-estimate the taxonomic importance of behavioural characteristics and criteria as they are influenced by evolutionary phenomena to the same extent (though perhaps in somewhat different ways) as all other characteristics and criteria used by modern taxonomy and systematics. In the case of the family Felidae both behavioural and morphological characteristics, however more or less pronounced they are, fit none the less together.

The Puma and the Leopard seem to be the best example as both of them are of about the same size. All the morphological characteristics listed by Hemmer as well as the cranial one mentioned above separate these two cats. In addition, all the basic behavioural features of the Puma are absolutely identical with those of small cats and all the principal features of behaviour in the Leopard are identical with those of all other big cats.

The group of big cats cover five species: the Leopard, the Jaguar, the Tiger, the Lion, and the Snow Leopard or Ounce. All of these species show every single one of the common characteristics summarized by Hemmer (l.c.) as well as a common skull feature given above. The Ounce presents, nevertheless, additional differences (especially cranial: general shape of skull, broad and short nasals, different form of bullae, different shape of occiput etc.) which are so distinct that an independent generic rank has to be applied for this member of the group.

I have repeated these known data in order to point out again the fact that all the species of recent Felidae can be divided into some groups on the basis of series of both morphological and behavioural differences, and to accent the other fact, viz. that within each of these groups we can find forms which are distinct enough to represent different genera in the framework of the respective group. Three or four subfamilies (Felinae Trouessart, 1885; Lyncinae Gray, 1867; Pantherinae Pocock, 1917 and Acinonychinae Pocock, 1917; Lyncinae being none the less generally included into Felinae) might thus indicate evolutionary lines and phyletic interrelations among living Felidae. Several forms of recent cats show of course, a problematic taxonomic status and a very misty phylogenetical position. From this point of view the position of the Clouded Leopard, *Neofelis nebulosa*, that in my opinion cannot certainly be held to be a member of Pantherinae, might turn out to be of the greatest interest.

Zoological nomenclature serves the end of zoological classification and a modern classification should reflect phylogeny, and developmental evolution, on the different levels of taxa. Morphological differences, of which cranial and skeletal ones are the most important, still represent the basis for such a classification in Mammals. There is no doubt that there are no fundamental differences in the general plan of skull structure in living Felidae. We cannot here go deep into the details of the problem of evolution and its ways, and there is no need to do so in order to show that even the greatest morphological similarities are in no contradiction with quite different origins of the forms in question. The findings of fossil cats show more and more the difficulties we are facing, when trying to study interrelationship of different forms of the Felidae. The palaeontological evidence also seems to suggest that main groups of cats could be less related among themselves than generally believed. Hence, it appears we should finally admit the justification of different genera and subfamilies in the living Felidae.

I would like to emphasize again that all the problems mentioned above have directly nothing to do with the problems of nomenclature. All the discussion which has gone on in this journal has only shown that the questions of interrelationships in the family Felidae are not clear. All this discussion has also shown the different opinions of various students and that can only be another reason that the generic name *Panthera* Oken, 1816 should be validated. A different opinion needs admittedly to be expressed in a formally correct way, if for nothing else than in the interest of defending zoological

nomenclature against confusion and in the interest of its stability. In my opinion the preservation of the generic name *Panthera* would be in the full accordance with these interests.

In conclusion, I would like to subjoin and to support Morrison-Scott's and Hemmer's application for conservation of the generic name *Panthera* Oken, 1816.

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*Bull. zool. Nomencl.*, Vol. 25, Parts 2/3. September 1968 : 66-67

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FURTHER COMMENT ON THE PROPOSED CONSERVATION OF  
*PANTHERA* OKEN, 1816 (MAMMALIA, CARNIVORA). Z.N.(S.) 482  
 (see volume 22, pages 230-232, volume 23, pages 67-70, volume 24, page 3  
 and pages 259-261, volume 25, pages 66-67)

By Paul Leyhausen (*Max-Planck-Institut für Verhaltensphysiologie, Abteilung Lorenz, Arbeitsgruppe Wuppertal, Germany*)

With reference to Morrison-Scott's request (*Bull. zool. Nomencl.* 22 : 230-232, 1965) to validate the generic name of *Panthera* Oken, 1816, and to the subsequent remarks by Hershkovitz, de Avila-Pires, Tortonese and Hemmer, I wish to give full support to Morrison-Scott's motion and the comments made by Hemmer. I should particularly like to emphasise that no researcher whose special work has been devoted to the large cats in the last 50 years has used *Leo* or any other generic name for them, and that—for want of something better—the "Classification of existing Felidae" is still best served by following Pocock (*Ann. Mag. Nat. Hist.* 1917). Cabrera, to me, is a very dubious authority, as he has written a catalogue but apart from that knew little about cats.

Although I must admit to some sympathy with Hershkovitz's philological and nomenclatorial pangs of conscience, I also feel that the purpose of nomenclature can only be to serve zoology, not harness it to a Procrustean bed. There is no room for a nomenclature as l'art pour l'art. Abandoning *Panthera* for whatever other name it might be would only create new confusion after all those actually working on these animals have adopted it.

For the past ten years I have been doing intensive research on the relationship of the Felidae, starting from behaviour, but gradually adducing evidence from all other available material, such as anatomy, furs, caryology, serology. It is my opinion that, due to the complicated pattern of character distribution within the family, a better classification than the existing one can be achieved only by working simultaneously on all cat species without exception; which is what we here are trying to do. This is, of course, a time-consuming enterprise, and it will be at least another 5 or 10 years before we shall feel on sufficiently safe ground for publication. However, we are quite certain that many and surprising changes in classification will have to be made, and that any further ruling now by the International Commission on Zoological Nomenclature of the kind suggested by Hemmer would be premature. It is certain that a number of genera are required, and that the generic name *Felis* should be confined to the group of cats included in that genus by Pocock (*Catalogue of the Genus Felis*, Trustees of the Brit. Museum, London, 1951) and Hattenorth (*Die Wildkatzen der Allen Welt*, Leipzig 1953). However, I strongly doubt the need for subfamily and subgeneric names within the family of Felidae and cannot, therefore, support Hemmer's request for a ruling on a subgeneric name *Tigris*, as there is mounting evidence that neither the tiger nor the ounce has a particularly close relationship with *Panthera* proper, that is lion, leopard and jaguar. A study on the problem of hyoid bone ossification is in progress. There is reason to suspect that non-ossification of the epiphyal bone in large cats is linked with body size rather than kinship.

In short, I am thoroughly in favour of Tortonese's comment (vol. 24, page 3) against issuing any rulings now which in all probability would have to be revoked or altered again in a few years' time. I feel confident that in the not too distant future

sufficient evidence will be available to resolve apparent discrepancies between the work of Haltenorth, Hemmer, myself and other workers and to support the proposal of a nomenclature for all the Felidae which will last.

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*Bull. zool. Nomencl.*, Vol. 25, Parts 4/5. January 1969 : 130

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